

## AMENDMENTS TO THE CLAIMS

**Claim 1. (Original)** A crystal oscillator nanochannel sensor comprising a nanochannel body thin film which has an oxide layer including surfactant micelles and is disposed on the surface of an electrode on a crystal oscillator of a crystal oscillator microbalance, the sensor detecting a change in the weight of the nanochannel body thin film, which change is caused by a collected target substance, as a change in the frequency of the crystal oscillator to thereby detect the existence of the target substance.

**Claim 2. (Original)** A crystal oscillator nanochannel sensor comprising a nanochannel body thin film in which a nanochannel body of the oxide layer is chemically modified and which is disposed on an electrode on a crystal oscillator of a crystal oscillator microbalance, the sensor detecting a change in the weight of the nanochannel body thin film, which change is caused by a collected target substance, as a change in the frequency of the crystal oscillator to thereby detect the existence of the target substance.

**Claim 3. (Original)** The crystal oscillator nanochannel sensor according to claim 1 or 2, wherein the oxide layer of the nanochannel body is constituted primarily of silicon oxide.

**Claim 4. (Currently Amended)** The crystal oscillator nanochannel sensor according to claim 1 or 2 ~~any of claims 1 to 3~~, the sensor detecting the existence of a target substance in a sample liquid phase.

**Claim 5. (Currently Amended)** The crystal oscillator nanochannel sensor according to claim 1 or ~~[[4]]~~2, the sensor detecting the existence of a target substance by mixing a

recognition reagent and a sample solution and extracting the recognition reagent and the target substance collected by the reagent in the nanochannel.

**Claim 6. (Original)** The crystal oscillator nanochannel sensor according to claim 4, the sensor detecting the existence of a target substance by impregnating a nanochannel with a recognition reagent in advance to make the included recognition reagent collect a target substance in a sample solution.

**Claim 7. (Currently Amended)** The crystal oscillator nanochannel sensor according to claim 1 or 2 ~~any of claims 1 to 3~~, the sensor detecting the existence of a target substance in a sample vapor phase.